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**A LEAD-FREE MIXTURE AS A RADIATION PROTECTION ADDITIVE**

**ABSTRACT OF THE DISCLOSURE**

The present invention provides a mixture containing a) at least 26 wt.% of gadolinium and b) one or more elements, alloys and/or compounds from the group consisting of barium, indium, tin, lanthanum, molybdenum, niobium, tantalum, zirconium and tungsten, a process for the preparation of this mixture, use of the mixture as radiation protection, use of the mixture to prepare polymeric radiation protection substances, a process for preparing radiation screening rubbers, thermoplastic materials and polyurethanes, a process for preparing products from the polymeric radiation protection substances and products made from these polymeric radiation protection substances.